2010

Social Capital in Coordination Experiments: Risk, Trust and Position

Meredith A. Whiteman
Florida State University, mwhiteman@fsu.edu

John T. Scholz
Florida State University, jscholz@fsu.edu

Social Capital in Coordination Experiments: Risk, Trust, and Position[1]

Meredith Whiteman[2]
Florida State University

John T. Scholz[3]
Florida State University

ABSTRACT

Social capital theory is exemplary in attempting to integrate both individual and institutional perspectives in the study of governance, but interactions between the individual and institutional components remain underexplored and unspecified in many situations. We extend the theory from its focal attention on prisoners dilemma games to an important and understudied class of collective action problems of critical concern for governance— coordination tasks ranging from simple matching games to more complex tasks involving conflict (battle of the sexes) and assurance problems (stag hunt). Laboratory experiments provide a means of observing the impact of institutional influences (bridging and bonding network capital), individual predispositions (trust and risk aversion), and their interaction on the ability to coordinate in these settings. The results confirm that neither individual nor institutional components alone can explain coordination, and that interactions between these components must be understood in terms of the specific task context being studied.

[1] Experiments were partially funded by NSF grant SES 0519459. The authors would like to thank various colleagues for their suggestions and assistance; Justin Esarey and T.K. Ahn for their involvement in an earlier cooperation experiment, including its programming, Sean Collins for his continued guidance in the re-programming stages, Tim Salmon, and Cherie Maestas for their helpful risk suggestions, David Cooper for many discussions on cooperative games and finally Jon Rogers for his help in conducting experimental sessions.
[2] Department of Political Science, Florida State University, Tallahassee, FL 32306-2230. Email: mwhiteman@fsu.edu
[3] Department of Political Science, Florida State University, Tallahassee, FL 32306-2230. Tel: 850-644-7304; Fax: 850-644-1367; Email: jscholz@fsu.edu.

The basic idea of social capital is well known and widely accepted. Cooperation evolves as individuals connected through overlapping networks of reciprocity develop common norms and mutual trust that allows them to resolve increasingly complex collective action problems (Coleman 1988, Putnam 1993, 2000). The theory has been expanded to include bridging as well as bonding relationships in extended networks that enhance different types of cooperation (Burt 2005, Berardo and Scholz 2010). Recent extensions apply social capital concepts to the study of governance institutions that evolve to mitigate a broad array of institutional collective action problems facing government agencies and private organizations in public policy settings (Feiock and Scholz 2010).

Consensus on the basic idea breaks down in specific applications because of ambiguity in basic concepts and claims compounded by a limited range of systematic studies to test these claims in different contexts. For example, to what extent do clustered relationships actually generate individual predispositions of trust and community norms that help coordinate policies within a policy community (Schnieder et al 2003), or alternatively to what extent do individual predispositions of policy actors create the clustered relationships in policy networks (Ahn and Scholz 2010)? More specifically, do trust and bonding relationships generally enhance each other's effectiveness in supporting cooperation, or are they substitutes that replace rather than reinforce each other (Yamagishi, Lubell et al 2010)? What role do trust and bonding relationships play in the broad range of collective action problems better represented by coordination games that do not involve the inherent conflicts of social dilemmas? Are bridging relationships more effective than bonding relationships in supporting coordination in policy networks (Berardo and Scholz 2010)? Does trust matter in these less conflictual settings, or do other individual predispositions like risk aversion play a more important role in affecting cooperation (Ivanova-Stenzel and Salmon 2010)?

We investigate these questions in a laboratory setting in which subjects are randomly assigned to exchange positions representing bridging and bonding relationships and play coordination games that represent different levels of conflict and assurance problems. By measuring individual dispositions of trust and risk aversion, we test the impact of risk, trust, and institutional position on performance in three coordination games.

Social Capital Integrates Individual Dispositions and Institutional Structure

Political science has developed sophisticated methods and models based on individual characteristics *or* on institutional setting, but is less equipped to analyze the broader category of interactions in which individual behavior is embedded within institutional settings that both shape and are shaped in complex ways by the population of individuals (cf Granovetter 1985). Social capital theory provides one example of how the two primary units of analysis can be jointly analyzed to explain one of the central features of governance—sustaining cooperation and coordination in collective action problems.

Triads Represent Institutional Settings

The institutional setting in social capital theory refers to the full set of relationships among those facing the collective action dilemma in which individual preferences lead to suboptimal collective outcomes. The positive role of clustered, overlapping networks of mutual reciprocity that we refer to generally as bonding relationships can be represented most simply in terms of the basic triadic relationships illustrated in Figure 1. The letters within each box represent the individuals involved in the collective dilemmas, and the lines connecting letters indicate that a relationship exists between individuals. For example, in our experiment the lines represent ongoing exchange relationships with choices and payoffs that correspond to iterated two-person coordination games. The closed triad on the left indicates that each individual plays with both others in the triad, while the open triad on the left indicates that D and F do not play each other, creating an open leg in the triad. In the closed triad all players fill equivalent positions that we refer to as members, which emphasizes the bonding relationship represented by closed triads. The open triad has two positions, and we refer to E as the leader and D and F as followers.

Following Coleman's analysis (1988), Berardo and Scholz (2010) argue that the closed triad is more likely to sustain cooperative outcomes than the open triad for iterated prisoners dilemma games because if A defects against B, C could defect against A either to punish A or out of concern that A would defect against C next. In the open triad, F could not retaliate against D, so D is not as constrained to maintain cooperation as A.

Thus the difference between closed and open triads provides arguably the simplest representation of the advantages of clustered network relationships, or what Burt (2005) calls bonding capital. Burt argues that bridging capital represented by the open triad is every bit as important for social capital as is bonding capital represented by the closed triad. In the open triad, E functions as a conduit between D and F, allowing information and resources to flow between D and F without requiring them to have a direct contact. In Burt's terms, E fills a "structural hole" between unconnected players, and gains all the brokerage advantages that the position allows. For coordination games involving no conflict, E can play a leadership role in selecting a mutually advantageous choice that both followers would readily accept.

Of course, if the coordination task involves some alternatives more favorable to the leader than the followers, the brokerage position would presumably allow the leader to exploit their position and do better than the followers. If leadership is important for achieving coordination, however, followers may still be better off than the members of the closed triads who have no structurally-induced leader and are less likely to gain any rewards from cooperation. Berardo and Scholz (2010) develop this idea in the risk hypothesis; policy network actors in open triads perform better for simple coordination tasks, but actors in closed triads perform better as the risk of exploitation by the leader increases. Thus actors will seek open triad positions when risks are low, but will increasingly seek closed triads as risks increase. In the experiments, we test this proposition by comparing the long-term coordination payoffs of members in the closed triad with the payoffs of leaders and followers in the open triads. The risk hypothesis would predict that the relative performance of members would increase as the complexity and risk of exploitation increases.

In addition to providing a clear representation of bridging and bonding structures, open and closed triads provide the basis for measuring both types of social capital. Exponential random graph models compare the number of open and closed triads in an observed network with the number expected by chance in random networks containing the same number of actors and links; significant positive coefficients for open triads indicates greater bonding capital, while significant positive coefficients for closed triads indicates greater bridging capital (Berardo and Scholz 2010). Carpenter, Esterling and Lazer (2005) found that lobbyists tended to form more closed triads than expected, while Berardo and Scholz (2010) found no significant difference in the observed closed triads than would be expected by chance in estuary policy networks. The former study concluded that lobbyists formed closed triads to reduce the risk of defection when information was needed, while the latter concluded that estuary policy relationships imposed less risk of defection, and hence did not require this type of social capital. In short, the 'risk hypothesis' implies that closed triads offer the best support for cooperation when the risk of defection is high, while open triads offer the best support for coordination when risk is low. By using closed and open triads as the basis for testing this hypothesis, experimental results can be directly translated into comparable tests using observed data from more complex field settings.

Trust and Risk Aversion Represent Individual Predispositions

Trust is generally considered to be the most critical individual component of social capital, and has been investigated in many contexts (Hardin 2006). The basic idea is simple. If player E trusts player D to reciprocate cooperation and not to defect in Figure 1, player E is more likely to cooperate with D despite the lack of institutional social capital in the open triad. We consider trust to be a behavioral propensity that increases the probability of choosing cooperative alternatives in relevant situations. Trust can only support cooperation when trusting individuals are paired with trustworthy individuals who reciprocate trust, at least to the extent that trust is conditional and is diminished in response to defections. Since behavioral measures of trust have been found to be as accurate in predicting trustworthiness as trust, (Glaeser et al 2003) any matched high trust players would be expected to cooperate at higher levels that any matched low-trust players or mismatched players. In short, the impact on cooperation is determined by the interaction of the trust of *ego* (the player of concern) and of the trust environment that in our case includes the trust of all *alters* (ego's game partners).

Social capital theory is clear that trust is more likely to develop in closed rather than open relationships (Ostrom and Ahn 2000), but the theory is more ambiguous about the relative impact of trust in each of the two triad settings. Yamagishi, Cook and Watabe (1998) argue that generalized trust is a substitute for closed relationships, so either trust or closed triads alone are sufficient to support cooperation. This implies that the combined impact of trust and closed triads will be less than the sum of independent impacts. The interaction between individual predispositions and institutional positions can be used to test this proposition (Whiteman 2010).[4]

[4] In prisoners dilemma experiments measuring cooperation the author found that structure alone did not predict cooperation. Instead, structure's effect was conditional on the trust dispositions of the subjects and their partners. Results show that network closure reinforced cooperative behavior only among high trusters. Conversely, among low trusters closure hampered cooperation and performance improved for low trusters in open network structures (Whiteman 2010).

Since our inquiry focuses on coordination games rather than on cooperative dilemmas, there is little reason to believe that trust should play a role in simple coordination games that do not involve any risk of defection. Institutional position rather than individual characteristics would appear to be most important here. However, trust and the trust environment are more likely to affect results when coordination tasks become more complex, and particularly when conflicting incentives hamper attempts to coordinate, as in the battle of sexes game discussed below.

For other coordination games, risk aversion provides a more salient behavioral predisposition when coordination involves a choice between safe alternatives guaranteeing some minimum payoff and higher paying alternatives that would pay nothing unless everyone chose the same riskier alternative (Ivanova-Stenzel and Salmon 2010). In this case, risk-averse individuals will have a greater tendency to choose the lower-paying safe alternative, while risk-seeking individuals will seek the higher-paying but risky alternative. Thus paired risk-seeking individuals are most likely to coordinate on the highest payoff, paired risk-averse individuals on the safe but lower payoff, and mismatched pairs are likely to earn the least because of the difficulty in coordinating on any one choice, as will be discussed further in the stag hunt game below. As with trust, the interaction between risk and the risk environment are expected to play an increasingly important role as the coordination task becomes more complex and risky.

In sum, trust and risk aversion appear likely to enhance social capital in coordination games involving conflict and risk respectively. Yet their mutual role across a spectrum of games has not been systematically investigated empirically or theoretically. Nor has their general relationship with open and closed triads been explored, although some specific relationships will be discussed in the context of the specific cooperative games described next.

Coordination Problems and Social Capital

We extend this analysis of individual and institutional social capital to collective action problems in which players can all be better off if they coordinate their decisions, but different types of problems make coordination difficult. The coordination tasks we consider range from simple matching games to more complex tasks involving conflict (battle of the sexes) and assurance problems (stag hunt). Given the complexity of interactions between individual and institutional factors outlined above, we limit the experiment to two-person games played in the triads illustrated in Figure 1. Figure 2 illustrates the payoffs that define each coordination game using the actual payoffs and format that was presented to subjects in the experiment. Players seek the highest payoffs from coordination in an iterated game in which they know only the choice of all others in their triad for up to four previous periods.

Matching

The matching game provides a simple coordination task in which each of the two players receives a payoff of 50 if they select the same color and a payoff of zero if they pick different colors. Both players have every incentive to choose the same color as the other player, and once a common color is selected, neither player has any incentive to change their choice. In this situation, social capital could consist of any common norms and predispositions that would determine a "focal point" allowing both players to make the same choice (Schelling 1978). A pretty color may be selected over an ugly one, for example, or a convention generally favoring the first choice in the list could also produce coordination even in the first period of play.

The experiment attempts to eliminate these sources of social capital by informing subjects and presenting the payoffs to each subject with an array of similarly vivid colors and different orderings. In an iterated game with no communication and no natural focal point, the first period choice is therefore arbitrary. In following periods the challenge is to coordinate as soon as possible on either one of the partners' initial choices.

The risk hypothesis argues that open triads have an advantage over closed triads because the leader's choice can provide a focal point for both followers, who can simply choose the leader's first period color in the second period. Members in the closed triad have no such focal point, and are therefore more likely to go through cycles in which either both or neither partner switches to the other's color.

Although there is no risk of defection in this game, trust may affect the number of periods required to coordinate to the extent that high trust is associated with a tendency to reciprocate, and reciprocity in this case would lead to a greater tendency to switch to the partner's color. If so, then two high trust subjects will have greater difficulty coordinating than a mixed pairing of high and low trust subjects, since opposing tendencies would lead to coordination on the color first chosen by the low trust subject. This hypothesis suggests that neither ego's nor alter's trust alone would improve coordination, but the interaction term would have a significant negative effect.

Battle of the Sexes

The battle of the sexes game adds conflict to the simple coordination task, as indicated by the payoffs in Figure 2b. The name of the game reflects the dilemma facing a couple who differ in whether to go to a movie or sporting event, but who would much prefer doing either together over going to the preferred event alone. The same problem is ubiquitous in coordination settings where all players are better off with a coordinated choice, but each would prefer a different option.

As in the matching game, both partners want to avoid selecting different colors and receiving a zero payoff, but they are now in conflict about whether to select green or blue. In the first payoff diagram to the left, the subject gets the higher payoff of 75 and the partner gets the lower payoff of 50 if both choose green. The payoffs are reversed if both choose blue, with the subject getting only 50 and the partner getting 75. Diagram 2 to the right reverses the advantage in the game with the second player for members and leaders, to emphasize to subjects that a different choice needs to be considered in the two games.[5]

As in the simple matching setting, the brokerage power of the leader in the open triad provides a potential advantage in avoiding mismatched color choices. A leader could choose the highest payoff with one follower and the lowest payoff with the other in each round, and reverse the ordering in the next round. If followers responded appropriately, all would receive a sequence of higher and lower payoffs, ensuring the highest average payoffs for leaders and followers alike. To the extent that trust reflects a predisposition to seek an equitable outcome, high trust for leaders and followers could increase the likelihood of establishing this equitable equilibrium.

On the other hand, a low trust or risk-seeking leader could use the brokerage power to insist on receiving the highest payoffs with each partner, while a risk-averse leader might settle for the lowest payoffs. Particularly in the former case, risk-seeking followers are likely to reduce the success of the leader's strategy and induce low coordination scores. In short, the introduction of conflict appears likely to reduce the potential advantage of the open triad, and is likely to enhance the importance of ego' trust and risk as well as the trust and risk environments.

Stag Hunt

The stag hunt game is named after the coordination problem imposed by hunting for stags rather than rabbits. If everyone chooses to hunt for the stag cooperatively, the chances of a

5 This mixing of colors inadvertently increased the ease of achieving an equilibrium in the closed triad, where the choice of a single color for each member would give the highest payoff to the subject in one game and to the other player in the other game, allowing each player in the triad to select a single color in order to receive both the highest and lowest equilibria, which provides a stable equilibrium with the highest average payoff in the iterated game that is not available in the open triad.

successful hunt and hence a high payoff are good. However, if some of the hunters decide to hunt for rabbits in neglect of their duties to the stag hunt, they are assured of a safer but smaller payoff, while those who stick with the stag hunt are likely to fail and receive nothing. Here the problem is not of conflicting incentives, but rather of *assurances* needed before one is willing to commit to the riskier high-payoff option. This tradeoff is reflected in many policy settings where potential collaborators must choose between easier, lower payoff projects that are less dependent on others and more productive high payoff projects that are dependent on commitments from others.

Figure 2c provides the two-person equivalent to the stag hunt, where silver represents the risky high payoff alternative and brick represents the safer but lower payoff alternative. As noted previously, matched risk-seeking partners are most likely to coordinate at the highest payoff, while risk-averse partners may successfully coordinate on the lower payoff equilibrium and mismatched partners will have the greatest difficulty in coordinating. Thus the matched low-risk partners and the mismatched partners have the greatest potential for improved coordination through a risk-seeking leader, particularly when risk averse or trusting followers are willing to copy the leader's choice.

To restate the obvious, conjectures in each of the games are based not on an integrated theoretical foundation but rather on extensions of the basic but underdeveloped arguments in social capital theory. They function less as testable hypotheses than as rebuttable assertions used to design the experiment and analytic approach intended to explore the impact of trust, risk and position on coordination games.

Initial Results: Performance in Open and Closed Triads Depends on the Game

Figure 3 compares coordination in open and closed triads in terms of the average payoffs per round in each of the three games. The vertical axis in each graph gives the average payoff in ECU units—note that the scales differ in each game due to the different range of average payoffs.

The horizontal axis indicates periods separately for players in open and closed triads. . Separate lines report results for subjects who played in the open and closed triads first. The stag hunt game indicates the reset after period eight by the break in the line.

The two graphs for matching (3a) and stag hunt(3c) both show that average payoffs increase in every round, suggesting that players tend to lock into a coordination equilibrium that maintains the same payoffs in succeeding rounds. As non-equilibrium pairs reach an equilibrium, the lower payoffs are reduced in each round. The clearest example is in the matching game (graph 1), where there is never a reason to abandon an equilibrium color choice once achieved. All open triads that first played in closed triads (green upper line in left graph of Figure 3a) manage to reach equilibrium by period four, earning the maximum payoff of 50 ECUs in the last two rounds.

The matching game in Figure 3a provides the strongest evidence that open triads are generally better for coordination, where average payoffs in all periods after the first are higher in the open than in the closed triads. Averaged over all periods in both rounds the average payoff of 38 in the open is significantly greater than 32 in the closed triads, with both payoffs indicating that full coordination is achieved in more than half the periods. The left-hand side of Figure 3a shows that open triads also score higher in each period when played after a first round in closed triads. Although the difference is not significant, it raises the possibility of a learning process in the open triad that is not evident in the closed. Overall, the initial matching results are consistent with the hypothesis that the leader in open triads can provide a focal point for coordination that is not available in closed triads.

The battle of the sexes game in Figure 3b shows no clear effect of structure. In both conditions a drop in payoffs occurs after the very first encounter with the game (the first period played when that condition was played first), after which improved coordination brings increasing payoffs in succeeding rounds. However, the overall average payoff of 44 in both open and closed triads and the highest average payoffs around 55 in the later periods fall short of the highest possible average payoff of 67.5. The pattern of payoffs provide little evidence of learning from the first round to the second; in fact, payoffs in the initial period of the second round actually drop for open and closed triads, and payoffs remain lower in every period for open triads during the second round.

The stag hunt game in Figure 3c does not support the superiority of open triads for coordination, since average payoffs over all periods and rounds for closed triads (73) is slightly greater than average payoffs for open (72). Figure 3a indicates that the higher average payoff reflects the higher payoffs for closed in the earliest and latest periods of each restart of play, suggesting perhaps that leaders introduce greater instability rather than leadership in stag hunt settings. We later clarify that trusting leaders in particular depress the earnings of trusting followers.

In sum, the simple risk hypothesis that leaders in open triads enhance coordination is supported for the matching game, but the battle of sexes and stag hunt games are inconclusive.

Analyzing the Impact of Risk, Trust, and Position on Coordination

Our central conjecture is that the response of ego in each position will be influenced by the predispositions of both ego and ego's partners. To test this conjecture we use maximum likelihood estimation of the effects on the coordination outcomes of risk and trust dispositions of both ego and alter in each of the structural positions.

Modeling Coordination

We estimate the same model in separate regressions for each game, with added controls in the longer stag hunt game to account for each repeated round. The dependent variable is *coordination* at the individual level in each period. Since payoffs differ across games, we use a uniform categorical ranking from worst to best outcomes for the subject on a scale from zero to three across all games in order to facilitate comparison. In the matching game if subjects chose the same color coordination is coded as a three, if they chose different colors it is coded as zero.[6] In the stag hunt game both ego and alter receive a coordination score of 3 if they chose silver and each receives 75 ECUs . The (50, 50) payoff earns ego a score of 2, (50, 0) a score of 1 and (0, 50) a score of 0. Coordination coding in the battle of the sexes again reflects the self-interested preference ordering of the subject; (0,0) earns ego a score of 0, (50, 75) a score of 2 and (75, 50) a score of 3. For members and leaders, ego's coordination is averaged over both alters, producing up to six ordered categories that range from zero to three.

Position: Position in the open or closed triad is represented by three dummy variables, *member, leader* and *follower,* for each of the positions labeled in Figure1. Member indicates an ego in the closed network. Leader equals one when ego is in position A of the open network and follower indicates egos in the periphery positions B and C of the open network. Follower is used as the omitted reference category for all estimations.

Trust: The trust questions in the pre-survey include three self reported trusting behaviors that have proved effective in predicting trust-related behavior in experiments (Glaeser & Soutter 2000, Orbell & Dawes 1991), including "How often do you lend CDs, DVDs or money to friends?" and "Have you ever benefited from the honesty of others?" Three questions from the General Social Survey that measure trust attitudes (Gachter 2003, Holm and Danielson 2005) were also included in the questionnaire, but our previous study of open and closed triads in the prisoners dilemma game (Whiteman 2010) has confirmed that the behavioral trust questions are better predictors of cooperative behavior than the attitudinal measures.[7] The *trust* variable is the

[6] Since our analysis of coordination was done within games only the matching code was essentially dichotomous. However we kept the full range of values in order to uniformly model coordination over all games.

[7] In previous estimations we have found that despite its wide spread use, attitudinal trust is a poor predictor of trusting behavior in the laboratory setting. Self –reported trusting behaviors are not only better predictors

dimension that loaded most heavily on the three trust behavior questions in the principal component analysis of the trust questions, recoded to a scale from 0 to 1 with 1 being the most trusting and 0 being the least.

Risk: The risk questions on the pre-survey include a standard lottery question used in experimental economics to measure risk aversion (Ivanova-Stenzel and Salmon 2010) and a risk aversion measure developed by Ehrlich and Maestas (2010) to reflect the subject's comfort level when making risky decisions. In addition, the first choice in the battle of sexes and stag hunt games provide observations of the subject's propensity to select the lower or higher payoff outcome in each game. Subjects choosing the "safe" choice guaranteeing a payoff of 50 in the stag hunt game are clearly more risk averse than those choosing the possibility of receiving either 75 or zero. Similarly, subjects willing to accept the lower payoff in the battle of the sexes appear to be more risk averse than those seeking the higher payoff; the lower payoff is safer in the sense that the partner is more likely to accept this choice and hence avoid the zero payoff that would occur if both partners insist on getting the higher payoff.

Our initial plan to create a combined risk aversion scale was abandoned when the pre-survey measures proved to be poor predictors of the first period choices in both games and the four measures had surprisingly low correlations. Although the first choice in stag hunt more closely reflects the lottery question in theory, the highest correlation (.28) among all four variables was between the battle of the sexes first choice and the lottery question. The lower correlation of the stag hunt choice likely reflected the fact that only one in ten subjects chose the lower paying option in that game, whereas about half of the subjects chose the lower paying option in battle of the sexes. The more even split in the battle of sexes choice appears to better reflect the discrimination among

but robust to alternative specifications. We conducted identical tests to our previous analyses and found that like our previous findings, after principle components analysis two significant components emerge; one loading primarily with the GSS questions and another loading primarily with the behavior questions.

subjects provided by the lottery question. As a result, we decided to use the first period choice from the battle of the sexes as the best measure of ego's behavioral disposition to risk aversion. Because leaders and members make two choices in this first period, the two first-period choices are averaged so .5 indicates an ego that chose the risky alternative with one partner and risk-averse alternative with the other. *Risk* is coded as increasing risk aversion, with 0 indicating a risk seeking ego and 1 indicating a risk averse ego.

Trust, Risk and Position: We expect that predispositions will lead to different behaviors depending on ego's position in the triad, so we interact trust and risk with member and leader to compare the impact of each predisposition across positions. We use follower as the base category in the model, since followers are most distinct in having only one game to play. The coefficient for trust and risk therefore estimate the variables' impacts for followers, and the coefficient for the interaction variables estimate the difference in impact on followers versus the position that is interacted with each variable.

Trust and Risk Environment: A key element of our approach incorporates the effects of alters' dispositions on ego's behavior and on coordination outcomes. The average trust level or risk aversion that ego comes in contact with defines ego's trust or risk environment for the game. *Alter risk* aversion and *alter trust* measure the average risk aversion and trust values for ego's current partners. Since ego and alters respond to each others' dispositions, we interact both ego and alter risk aversion and ego and alter trust to measure the combined effects of the risk and trust environments respectively.

Experimental Controls: We represent several elements of the experimental design in the model to control for subject backgrounds and ordering effects. Controls for subject background include *age*[8] and dummy variables *male* and *experts,* a variable to distinguish subjects in the session that recruited students and faculty with knowledge of game theory. Controls for ordering effects include *closed first* to distinguish subjects who played each game first in the closed triad from the (omitted) baseline category that played each game first in the open triad. Similarly, *Match First* distinguishes subjects who were first assigned to the matching game and *Stag Hunt First* distinguishes subjects first assigned to the stag hunt game from the (omitted) baseline category that played battle of sexes first.

Estimation Procedure: The nature of the experimental data lends itself well to a nonlinear panel estimation of coordination. Each of the 99 subjects has repeated interactions over ten periods in the combined matching games, 20 periods in the combined battle of sexes game, and 32 periods in the combined stag hunt games. The subject and not the game provides the unit of analysis, so alter and coordination variables and are averaged when subjects are playing in two games. Since we observe many individuals over many periods and since the dependent variable is measured in up to six ordered categories, we use a random effects ordered probit model (Fréchette 2001) for estimating the effect of position, risk and trust on coordination. Random effects estimation, as opposed to fixed effects estimation, is necessary because important variables like trust and risk do not vary at the individual level.[9]

Table 1 presents the results of the three random effects ordered probit models, one for each coordination game, in the three labeled columns. Estimated coefficients for the row variable are

[8] Normally age is a non-issue since most undergraduates fall within a 5 year age range, but for this analysis age controls were added because our "Expert Sample" session consisted of graduate students and faculty members. In general laboratory settings age icreases coordination (Heinneman et al 2004), and giving in ultimatum (Guth, Schmidt and Sutter 2003) and dictator games (Bosch-Domenech et al. 2007).

[9] Random effects models treat the individual-specific effect as a random variable. From the initial data analysis, the within and between variances in all game are different. Because of this difference the use of a fixed effects model would eliminate one or more key explanatory variables. With the use of long panels this problem is very common (Cameron and Trivedi 2008) and random effects are necessary.

reported in the cells with standard errors in parentheses, and model statistics are provided in the last rows of the table.[10]

The interactions are easier to understand in terms of the combined effects on payoffs as presented in the graphs in Figure 4. The left column of graphs illustrates the effect of trust terms for each game model, while the right illustrates the effect of risk. Each line in the graphs represents the predicted coordination (vertical axis) for ego as ego's trust or risk changes from zero to one (horizontal axis) for the specific category of players represented by the line. Members (red), leaders (blue), and followers (green) are each represented by colored lines. For each position or color, solid lines represent outcomes in an environment of low-valued alters, while dotted lines represent high-valued alters. Thus the graphs illustrate the full pattern of interactions between position and the trust and risk dispositions of both ego and alters, controlling for the other variables in the model. Since the predicted values are calculated using the actual value for all variables in the model for a given fitted observation, lines on the trust graph end with the lowest and highest value of ego's trust observed for each category represented.[11] Several significant control variables in Table 1 provide useful background information for the discussion of results. Playing the stag hunt game first significantly suppressed scores in the other games; this game turned out to be the easiest to coordinate and hence the highest-scoring, which perhaps set unduly high expectations for the ensuing games. Furthermore, each of the succeeding three rounds in the stag hunt produced increasingly higher levels of coordination that were all significantly higher than the first. Experts with knowledge of game theory did significantly better than others in the stag hunt game, where the high-scoring equilibrium is evident and attainable, but worse in the battle of the sexes game, where

[10] Rho values indicate the proportion of variance explained by the panel-level variance. A rho of zero means that most of the variation is within subjects and not between them making a random effects estimation inappropriate. All of our model rhos are non-zero and significant indicating that the variability between subjects is greater than within subjects, thus the random effect α is significant.
[11] Graphs were created in Stata by calculating fitted values (default xb) with "predict y" after each regression and graphing the predictions using the "graph twoway lfit y…" command.

optimal equilibria are less clear and negotiation through threatening countermoves might prove to be counterproductive. Males did better in the stag hunt even controlling for their potentially more risk-seeking behavior, and older students did somewhat worse in the battle of the sexes.

Results: Matching

The Matching game provides the simplest test of coordination, and as expected the matching model in Table 1 produces the simplest interactions between position, trust, and risk. Although open triads score better than closed triads in the direct comparison, the coefficients in Table 1 indicate that leaders and followers in open triads have no significant advantage over members in closed triads once we control for differences in trust and risk. In particular, the significant negative interaction between member and trust indicates that the most important difference in performance between open and closed triads is due to the poor coordination achieved by high-trust members of closed triads. In Figure 4.1.a, this is reflected in the increasing distance between the red lines representing members and the other colored lines—the distance is greatest with high-trust alters (dotted lines), although the alter effects are not significant in the model.

It is ironic that trust, the predisposition expected to support cooperative outcomes in prisoners' dilemmas, becomes a liability for closed triads in simple matching games. Egos with low values of trust do about equally well in all positions. We speculate that high trusters are those most likely to switch colors in the next period when partners have not yet coordinated on a color. High trust followers paired with low-trust leaders are therefore more likely to switch to the leader's color and the low-trust leader is more likely not to switch, increasing the likelihood of coordination. This explanation is consistent with the positive (although not significant) slope of the top line for followers facing low-trust alters in Figure 4.1.a, particularly for high-trust followers who coordinate at the highest levels. When these same high trust players are members of a closed triad with no natural leader, the same propensity to change presumably increases the problem of cycling in which both players adopt the other's previous choice, leading to the lowest coordination outcomes.

Risk predispositions that are generally thought to be more relevant to coordination games, on the other hand, play no significant role in the matching model. The generally negative slopes for risk aversion in Figure 4.1.b are not associated with significant coefficients, and the lower outcomes for members compared with leaders and followers appears to be about the same for high and low risk alters and all levels of ego's risk aversion. In sum, structure is important in the matching game, but primarily because high trust egos have significantly more coordination problems in closed triads than in open ones.

Results: Battle of the Sexes

The Battle of the Sexes game introduces a level of conflict to the task of coordination that produces the expectedly complex pattern of significant interaction effects in Table 1. First, the negative coefficients for position variables indicate that followers coordinate at the highest levels, and the coefficient for leaders indicates a significant difference between leaders and followers. Several exit interviews suggested a likely explanation: since leaders play two games to followers' one game per period, they have twice as many earning possibilities. A norm of fairness would suggest therefore that leaders should accept the lower payoff in each game and allow each follower to get the highest payoff. Leaders still earn more per period (2x50=100 vs. 75 for each follower), but selecting the lower payoff results in the lower coordination category per game that is reflected in the negative coefficient for leaders. In any case, the redistribution from leader to follower does not provide higher average payoffs in open than in closed triads, since both earn the same on average as reported previously.

Second, all but one trust variable is significant, indicating that the effects of trust depend on both position and on the trust environment. Only the interaction member x trust is not significant, indicating that members share with the base category of followers the same strong negative effect of trust. Leaders are significantly different, with trust having a slightly less negative effect. Both terms of the trust environment are significant, with alter's trust also having a negative effect on coordination but the combined ego and alter trust having a larger positive impact. The result is most readily seen in Figure 4.2.a, where coordination generally decreases with trust for low-trust environments (negative slope of solid lines) but actually increases with trust for high-trust environments (positive slope of dotted lines). In other words, coordination increases with the similarity of ego and alter's trust. Low trust egos paired with low trust alters score highest for all but the leadership position, while high trust egos always do their best when paired with other high trust alters.

To the extent that trust encourages reciprocity, as suggested earlier, the results are consistent with a greater willingness of high trusters to choose the lower payoff first in the expectation of receiving the higher payoff in the next period, which would result in both players receiving the highest possible average payoff in a sequence of plays. While the high trust strategy may work when matched to another high truster, it would also lead to lower payoffs when mismatched with low trusters more inclined to take the higher payoff in every round. This does not explain why low trusters paired together do better than high trusters paired together, except to suggest the difficulty in developing and sustaining the high mutual payoff equilibrium of alternatively sharing the highest and lowest payoffs.

Third, both of the position interactions with risk are significant, but the risk environment is not. Both members and leaders are adversely affected by increasing risk aversion in comparison to followers, the baseline category that shows no significant affect related to risk. As with trust, the risk environment indicates that egos do better when matched with alters of similar risk aversion, but in this case the alter interactions are not significant. Thus the negative impact of risk aversion on members and leaders is the dominant factor for risk, as indicated by the downward-sloping solid and dotted lines for all but followers in Figure 4.2.b. Since risk aversion is measured by the selection of the lower payoff coordination equilibrium, the predisposition that leads to this choice (controlling for trust) appears most harmful for members and leaders. Followers are less affected by risk aversion, presumably because of the fairness norm that strongly favors them in relation to leaders.

In sum, leaders do worse than followers and members in the battle of the sexes game, most likely because of the fairness norm that adversely affects only leaders. All positions do better when paired with alters sharing similar levels of trust, particularly when both have low trust. This may reflect a predisposition among high trusters to seek reciprocation by initially selecting the low payoff outcome. Finally, members and leaders do worse with higher risk aversion, although followers are less affected.

Results: Stag Hunt Game

The stag hunt game has no conflicting motives among players, but requires assurance that other players will choose the highest coordinated payoff rather than the safest choice. Table 1 reports significant interactions with both the trust and risk environments, but no significant interactions with position. Although the coefficients in Table 1 suggest that leaders do better than followers and members in average payoffs controlling for trust and risk, the differences in this case are not significant.

As expected in more complex coordination tasks, trust and risk environments appear to play the dominant role in stag hunt, with position having little influence. The positive coefficients of trust and alter trust are balanced in this case by a large negative interaction coefficient between ego and alter, so ego and alter that are on opposite ends of the trust scale coordinate more successfully than those who are similar. In Figure 4.3.a, this can be seen in the positive slopes for low-trust alters which indicates that higher trust egos score higher when paired with low-trust alters, regardless of the subject's position in the triad. Similarly, the primarily negative slopes for high trust alters indicate that lower trust egos do better when paired with this group. In short, being paired with alters having similar levels of trust helps coordination in the battle of the sexes game, but actually harms coordination in the stag hunt game.

The interactions with risk, on the other hand, suggest that similarity in risk aversion does enhance coordination, particularly among members. Unlike in Figure 4.3.a, the dotted lines representing the risk averse alter environment have positive slopes, while the line representing the risk seeking alter environment (solid) has a negative slope for members, and a steeper positive slope than for the risk averse environment for leaders and followers. For leaders and followers, risk aversion has a positive impact even with risk seeking alters. In short, increases in risk aversion will increase ego's rewards of coordination in all positions except for members facing risk seeking alters, but ego will still do better when paired with a similar alter.

Implications for Leaders, Followers and Members

In general, the graphs in Figure 4 suggest that it is best to avoid being a member in matching situations, a leader in battle of the sexes situation, and a follower in stag hunt situations. In addition, leaders, followers and members appear to require different strategies to coordinate when conflict and assurance problems are added to the basic matching problem of coordination. Cells in Table 2 report the trust and risk strategies suggested by models for the indicated row position when confronting the column game. The table is intended primarily as overview of the results, and comes with a strong proviso that not all prescriptions are supported by significance tests and even when well supported no single experiment can establish the generalizability of results to broader settings. Furthermore, the link between predispositions and the actual decision strategies they are associated with are not well established, so the theoretical foundations are very weak for most suggestions.

Leaders, for example, do best in Table 2 by reigning in their natural trust propensity in simple matching settings, but by increasing their trust in both of the more complex coordination settings. When alters can be selected, leaders should seek low trust followers in matching games, but seek followers with trust similar to their own when conflict of interest is a factor (battle of the sexes) and seek alters opposite their trust predisposition when assurance is most required (stag hunt).

Followers, on the other hand, need to respond primarily to the leader's trust. They do best by shifting their trust in the opposite direction from the leader for simple matching or assurance settings, but shifting toward the leader for the more conflictual setting of battle of the sexes. Consequently, a follower's selection strategy for leaders is the same as the leader's strategy for selecting followers.

Members, like leaders, do best by reducing trust and seeking low trust members for simple matching settings. In the more complex games, their best strategy is the same as followers, emphasizing similarity for conflict situations and dissimilarity for assurance situations.

Risk aversion requires a slightly different pattern. Leaders in this case do best by increasing their natural risk aversion for simple matching and assurance settings, but by seeking greater risk in conflict situations. Followers, unlike leaders, do best by seeking greater risk in simple matching settings and by moving toward the leader in conflictual settings. However, like leaders, they do best by increasing risk aversion when assurance becomes most critical. Members, like followers, reduce risk aversion in matching settings. However they also reduce aversion in conflictual settings like leaders do, but move opposite their alters for stag hunt and assurance settings.

Conclusion

Our experimental investigation supports the contention that position, risk and trust play complex and interactive roles in coping with coordination problems, although the results raise more issues than they resolve for the theory of social capital. As expected, the leadership structure in open triads improves outcomes for leaders and followers alike in simple coordination tasks like the matching game. However, leadership plays this positive role primarily to overcome the problems of coordination among high trust subjects. Trust may provide critical support for cooperation in social dilemmas, but the experiment indicates that low trust leaders and members are better able to resolve simple coordination problems. Furthermore, the role of risk, trust, and the risk and trust environments changes dramatically with the type of game as well as with the position of the subject.

Trust plays an unexpectedly large role in explaining cooperative outcomes in all coordination games. When conflict confounds the problem of coordination, as in the battle of the sexes game, trusting leaders do better for themselves than non-trusting leaders, unlike in the simpler matching game. However, trusting leaders appear to do better in the experiment primarily by allowing followers to exploit them. "Transparency" in the open triad makes it clear to followers that leaders can earn twice what followers can, and a trusting leader willing to share this advantage by accepting the lower-scoring equilibrium appears to do better than a more confrontational leader in this setting. For followers and members, on the other hand, the level of trust is less important than being paired with an alter having a similar level of trust. Matched high and low trust pairs do better than mismatched pairs. Matched high trust subjects are likely to overcome conflicting coordination choices for the same reasons they can overcome conflicting cooperation choices in prisoners dilemma games. But why can matched low trust subjects overcome the same conflicting coordination choices and actually outscore matched high trust subjects? What strategy related to a low trust behavioral predisposition can explain this enhanced performance?

More trusting leaders do better in both of the more complex coordination game. However, when assurance rather than conflict poses a challenge to coordination, as in the stag hunt game, mismatched pairs in all positions outperform matched pairs with similar levels of trust. It is not particularly surprising that conflict and assurance problems might require such opposite strategies, but a clear explanation of why these strategies work in each setting is also needed.

The role of risk aversion in coordination games is more widely recognized than is the role of trust, but here again experimental results suggest a more complex role than current theories can explain. The theoretical expectations that greater risk aversion and closed triads would both decrease payoffs in the stag hunt game are only partly confirmed. Greater risk aversion increases payoffs for all but one condition in Figure 4.3.b, but closed triads earn higher average payoffs than do open triads. On the other hand, greater risk seeking increases payoffs for all but one condition in the battle of sexes game in Figure 4.2.b, and slightly enhances payoffs for all conditions in the simple matching game.

The experimental results provide both empirical and theoretical challenges for social capital theory. Empirically, the complex results from our broad-brush experiment need to be retested in more narrowly-designed experiments with manipulations to probe specific relationships for each game. For example, would payoffs more favorable to the safe choice make risk aversion more important than trust in the stag hunt game, or would different representations of leadership and transparency alter the role of leaders in the matching game. Theoretically, the biggest challenge is to link predispositions to specific strategies that explain observed relationships. This would require both a better understanding of learning strategies in iterated coordination games and better tools to identify such strategies in empirical data. We hope that the experimental results reported here demonstrate the importance of considering important collective action settings beyond those associated with the prisoner's dilemma, the need to analyze interactions between institutional structures and individual traits of the population in each collective action setting, and the utility of experimental methods to do so.

References

Ahn, T.K., and John T. Scholz. 2007. "Reputation and Cooperation in Voluntary Exchanges: Comparing Local and Central Institutions." *Manuscript.*

Axelrod, Robert. 1984. The Evolution of Cooperation. New York, New York: Basic Books.

Baumeister, Robert F. 1982. "A Self-Presentational View of Social Phenomena." Psychological Bulletin 91(1):3–26.

Antoni Bosch-Domãnech, Rosemarie Nagel & Juan Vicente Sãnchez-Andreãs, 2007. "Social Capabilities in Alzheimer's Patients," Economics Working Papers 1020, Department of Economics and Business, Universidad Pompeu Fabra.

Berardo, Ramiro, and John T. Scholz. 2010. "Self-Organizing Policy Networks: Risk, Partner Selection and Cooperation in Estuaries." *American Journal of Political Science* 54(3):632-649.

Brambor, Thomas, William Clark & Matt Golder. 2006. "Understanding Interaction Models: Improving Empirical Analyses." Political Analysis 14:63–82.

Burt, Ronald. 2005. *Brokerage and Closure. An Introduction to Social Capital.* Oxford: Oxford University Press.

Cameron, A. Colin, P.K. Trivedi. 2008. *Microeconometrics Using Stata*. Taylor & Francis, Inc.

Coleman, James. 1988. "Social Capital in the Creation of Human Capital." American Journal of Sociology 94:S95–S120.

Ehrlich, Sean and Cherie Maestas. 2010. "Risk, Risk Orientation and Policy Opinions: The Case of Free Trade" *Political Psychology.*

Fehr, Ernst & Urs Fischbacher. 2004. "Social norms and human cooperation." Trends in Cognitive Science 8(4):185–190.

Fischbacher, Urs. 2007. "z-Tree: Zurich Toolbox for Ready-made Economic Experiments." Experimental Economics 10(2):171–178.

Fukuyama, Francis. 1999. The Great Disruption: Human Nature and the Reconstitution of Social Order. New York, New York: The Free Press.

Gachter, Simon, Benedikt Herrmann & Christian Thoni. 2003. "Trust, voluntary cooperation, and socio-economic background: survey and experimental evidence." Journal of Economic Behavior and Organization 55:505–531.

Glaeser, Edward L., David I. Laibson, Jose A. Scheinkman & Christine L. Soutter. 2000. "Measuring Trust." The Quarterly Journal, of Economics 115(3):811–846.

Güth, Werner, Carsten Schmidt & Matthias Sutter 2003 "Fairness in the Mail and Opportunism in the Internet: A Newspaper Experiment on Ultimatum Bargaining" German Economic Review 4(2): 243-265.

Hardin, Russell. 2006. Trust. Cambridge, U.K.: Polity Press.

Hausman, J.A., B.H. Hall & Z. Griliches. 1984. "Econometric Models for Count Data with an Application to the Patents-R&D Relationship." Econometrica 52:90–938.

Heinemann, Frank, Rosemarie Nagel & Peter Ockenfals. 2009. "Measuring Strategic Uncertainty in Coordination Games." The Review of Economic Studies 76: 181-221.

Ivanova-Stenzel, Radosveta and Timothy C. Salmon. The High/Low Divide: Self-Selection by Values in Auction Choice. Working Paper. 2010

Lubell, Mark, Adam Douglas Henry, and Mike McCoy. 2010. "Collaborative Institutions in an Ecology of Games." American Journal of Political Science 54(2): 287-300.

Orbell, J. & R.M. Dawes. 1991. "A Cognitive Miser Theory of Cooperators Advantage." American Political Science Review 2:515–528.

Ostrom, Elinor. 1990, 2006 reprint. Governing the Commons. Cambridge, U.K.: Cambridge University Press.

Ostrom, Elinor & T.K. Ahn. 2003. Foundations of Social Capital. Cheltenham, U.K.: Edward Elgar Publishing Limited.

Putnam, Robert D. 1993. *Making democracy work: civic traditions in modern Italy.* Princeton, N.J.: Princeton University Press.

Putnam, Robert D. 2000. Bowling Alone: The Collapse and Revival of American Community. New York, New York: Touchstone Scott, John. 2000. Social Network Analysis: a handbook, 2nd edition. London: Sage Publications.

Schelling, Thomas. 1978. *Micromotives and Macrobehavior*. Norton: New York.

Schneider, Mark, Mark Lubell, John Scholz, Denisa Midruta, Matt Edwards. 2003. "Building Consensual Institutions: Networks and the National Estuary Program." *American Journal of Political Science* 47:143-158,

Sobel, M.E., ed. 1982. Asymptotic confidence intervals for indirect effects in structural equations models. In Sociological methodology. San Francisco: Josey-Bass pp. 290–312.

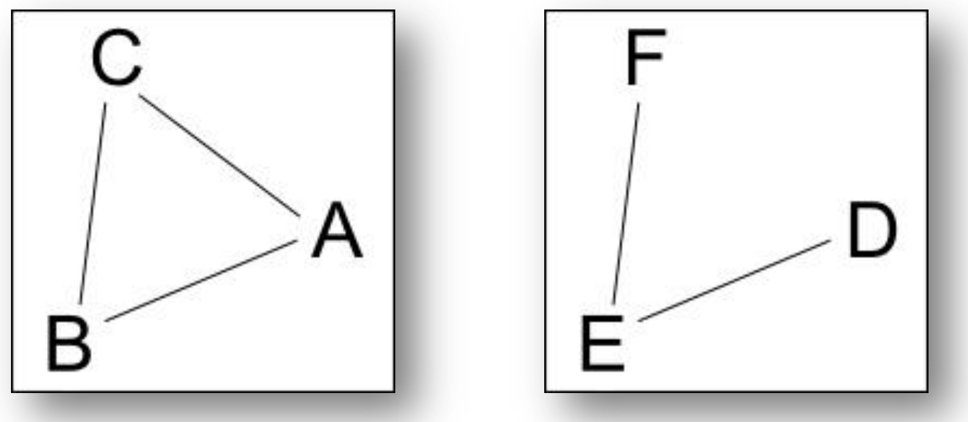
Straub, Paul G. 1995. "Risk Dominance and Coordination Failures in Static Games" The Quarterly Review of Economics and Finance. 35(4): 339-363.

Whiteman, Meredith. 2010. “Facilitating and Maintaining Social Capital in Networks: An Experiment on the Effects of Trust and Clustering.” *Working Paper*.

Wilson, Rick & Carl M. Rhodes 1997 “Leadership and Credibility in N-Person Coordination Games” The Journal of Conflict Resolution 41(6): 767-791.

Yamagishi, Toshio, Karen S. Cook and Motoki Watabe. 1998. “Uncetainty, Trust and Commitment Formation in the United States and Japan.” *American Journal of Sociology* 104(1): 165-194.

Figure 1: Social Capital and Positions in Closed and Open Triads



Closed Triad **Open Triad**

Positions within Triad Structures:

Member = Positions A, B and C in Closed Triad
Leader = Position E in Open Triad
Follower = Positions D and F in Open Triad

Figure 2: Matching, Battle of the Sexes, and Stag Hunt Coordination Problems

a. Matching

Others Choice:

Your Choice:

	yellow	pink	red	orange	violet
orange	you: 0 other: 0	you: 0 other: 0	you: 0 other: 0	you: 50 other: 50	you: 0 other: 0
pink	you: 0 other: 0	you: 50 other: 50	you: 0 other: 0	you: 0 other: 0	you: 0 other: 0
violet	you: 0 other: 0	you: 0 other: 0	you: 0 other: 0	you: 0 other: 0	you: 50 other: 50
red	you: 0 other: 0	you: 0 other: 0	you: 50 other: 50	you: 0 other: 0	you: 0 other: 0
yellow	you: 50 other: 50	you: 0 other: 0	you: 0 other: 0	you: 0 other: 0	you: 0 other: 0

b. Battle of the Sexes

Others Choice:

Your Choice:

	blue	green
green	you: 0 other: 0	you: 75 other: 50
blue	you: 50 other: 75	you: 0 other: 0

1

	blue	green
green	you: 0 other: 0	you: 50 other: 75
blue	you: 75 other: 50	you: 0 other: 0

2

c. Stag Hunt

Others Choice:

Your Choice:

	brick	silver
silver	you: 0 other: 50	you: 75 other: 75
brick	you: 50 other: 50	you: 50 other: 0

Figure 3: Average Payoffs per Period in Coordination Games

a. Matching

b. Battle of the Sexes

c. Stag Hunt

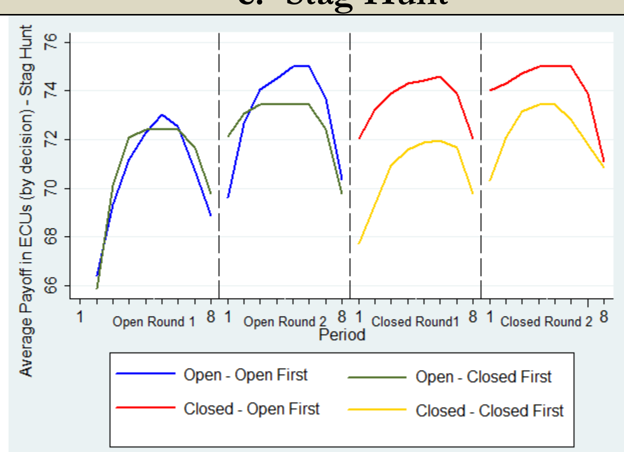


Figure 4: Predicted Outcomes for Risk, Trust and Position Interactions

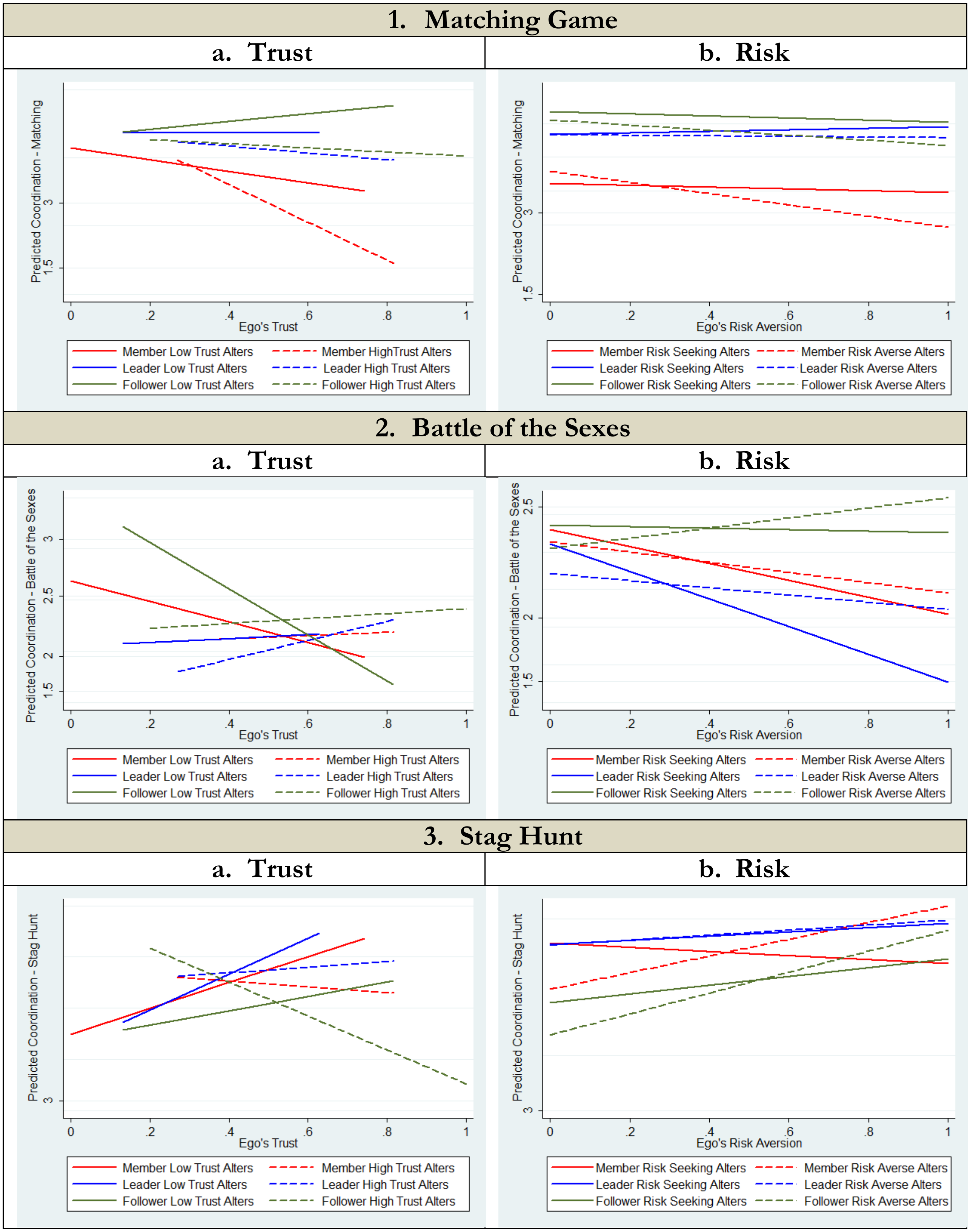


Table 1: The Impact of Position, Trust, and Risk on Coordination

	Matching b/se	BoS b/se	Stag Hunt b/se
		Position	
Member	0.191	-0.216	0.0878
	(0.34)	(0.22)	(0.39)
Leader	-0.0529	-0.872***	0.449
	(0.48)	(0.32)	(0.44)
		Trust	
Trust	0.363	-5.801***	8.124***
	(1.79)	(1.15)	(1.57)
TrustxMember	-1.179*	0.639	1.265*
	(0.63)	(0.41)	(0.76)
LeaderxTrust	-0.294	1.573***	1.305
	(0.90)	(0.59)	(0.88)
Alter Trust	-0.572	-5.337***	8.403***
	(1.91)	(1.03)	(1.75)
Egoxalter Trust	-0.313	8.947***	-16.50***
	(3.73)	(2.08)	(3.15)
		Risk	
Risk	-0.14	-0.0283	0.511*
	(0.26)	(0.18)	(0.29)
RiskxMember	-0.0288	-0.515***	-0.646**
	(0.22)	(0.13)	(0.26)
LeaderxRisk	0.27	-0.506**	-0.743**
	(0.32)	(0.23)	(0.35)
Alter Risk	-0.104	-0.123	-0.513**
	(0.19)	(0.15)	(0.25)
EgoxAlter Risk	-0.0836	0.239	1.350***
	(0.30)	(0.23)	(0.35)
rho	0.0696**	0.163***	0.621***
	(0.03)	(0.03)	(0.03)
N	990	1980	3168
log likelihood	-882.19109	-3329.34	-1089.68

*p<.10; **p<.05; ***p<.01 (two-tailed)

Table 1(ctd): The Impact of Position, Trust, and Risk on Coordination

	Matching b/se	BoS b/se	Stag Hunt b/se
		Controls	
age	-0.0201	-0.0371*	0.00684
	(0.02)	(0.02)	(0.02)
male	0.07	0.132	0.419***
	(0.10)	(0.11)	(0.11)
Closed first	0.166	-0.192*	0.0501
	(0.11)	(0.11)	(0.17)
Match First	-0.217	0.138	0.127
	(0.15)	(0.15)	(0.20)
Stag Hunt First	-0.283**	0.012	-0.456***
	(0.12)	(0.13)	(0.16)
Experts	-0.0187	-0.425*	0.875***
	(0.25)	(0.23)	(0.33)
Round2	--	--	0.569***
			(0.11)
Round3	--	--	0.645***
			(0.11)
Round4	--	--	0.970***
			(0.12)
cut1	-1.819*	-5.311***	1.842**
	(1.01)	(0.69)	(0.83)
cut2	-1.34	-4.895***	2.145***
	(1.01)	(0.69)	(0.83)
cut3	--	-4.556***	2.550***
		(0.69)	(0.83)
cut4	--	-3.967***	2.938***
		(0.69)	(0.83)
cut5	--	-3.415***	3.192***
		(0.69)	(0.84)
N	990	1980	3168
log likelihood	-882.19109	-3329.34	-1089.68

*p<.10; **p<.05; ***p<.01 (two-tailed)

Table 2: Implications for Leaders, Followers and Members

Implications for Trust

Coordination situation	Matching	Battle of the Sexes	Stag Hunt
Leader	Reduce trust, seek low trust alter	Increase trust, seek similar alter	Increase trust, seek opposite alter
Follower	move opposite alter, seek low trust alter	Move toward alter, seek similar alter	Move opposite alter, seek opposite alter
Member	Reduce trust, Seek opposite alter	Move toward alter, seek similar alter	Move opposite alter, seek opposite alter

Implications for Risk Aversion

Coordination situation	Matching	Battle of the Sexes	Stag Hunt
Leader	Increase aversion, seek low aversion alters	Decrease aversion, seek similar alter	Increase aversion (little effect), alter doesn't matter
Follower	Reduce aversion, Choose low aversion alter	Move toward alter, seek similar alter	Increase aversion, seek similar alter
Member	Reduce aversion, seek opposite alter	Reduce aversion, seek similar alter	Move toward alter, seek similar alter